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| 10/660,750      | 09/12/2003  | In-Soo Joo           | 21C-0309            | 5986             |

23413 7590 12/28/2006  
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| EXAMINER |
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CARTER, AARON W

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| ART UNIT | PAPER NUMBER |
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2624

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 12/28/2006 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/660,750

Applicant(s)

JOO ET AL.

Examiner

Aaron W. Carter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-22 is/are allowed.
- 6) ☒ Claim(s) 1-7,9 and 10 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 4, 8, 13-15 and 19-21 are objected to because of the following informalities:

Claims 4, 8, 13-15 and 19-21 contain the abbreviation TFT, for purposes of clarity, the first appearance of the abbreviation in each claim or claim group should first contain the full text of the abbreviation followed by the abbreviation.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5-7, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,647,133 to Morita et al. ("Morita").

As to claim 1, Morita discloses an image recognition apparatus comprising:

A transparent substrate;

A first recognition section disposed on the transparent substrate (Fig. 2, element 15 and 15a and column 3, lines 38-51, wherein the prism, element 15, corresponds to the transparent substrate and the inclined surface represented by element 15a corresponds to a first recognition section disposed on the transparent substrate (15) which is used in fingerprint recognition), the first recognition section receiving an image pattern from an object and generating a first recognition signal corresponding to the received image pattern (Fig. 2, element 19 and column 3, line 52 – column 4, line 2, wherein the fingerprint pattern corresponds to the image pattern and judging that the fingerprint is a target corresponds to generating a first recognition signal); and

A second recognition section disposed on the transparent substrate adjacent to the first recognition section (Fig. 2, elements 15, 21a and 21b and column 4, lines 3-15, wherein the elements 21a and 21b correspond to the second recognition section disposed on the transparent substrate represented by the prism, element 15, which are used for human finger recognition), the second recognition section sensing a biological signal from the object so as to check whether or not the first recognition signal is obtained from a human being (column 4, lines 3-15, wherein the impedance detected by the electrodes (21a and 21b) corresponds to a biological signal and is used to check whether or not the fingerprint recognition signal is obtained from a human finger).

As to claim 2, Morita discloses the apparatus of claim 1, wherein the first recognition section is disposed on a center portion of the transparent substrate and the second recognition section is disposed on a peripheral area surrounding the first recognition section (Fig. 2, elements 15, 15a, 21a and 21b, wherein 15a corresponds to the first recognition section and elements 21a and 21b correspond to the second recognition section and as seen in Fig. 2, 15a is disposed in the

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center portion of the transparent substrate (15) and 21a and 21b are disposed on a peripheral area surrounding 15a).

As to claim 3, Morita discloses the apparatus of claim 2, wherein the first recognition section comprises an image recognition sensor that generates the first recognition signal corresponding to an amount of a reflecting light reflected from the image pattern, the amount of the reflecting light being differently reflected according to a position from which the reflecting light is reflected (Fig. 2 and column 3, lines 31-51, wherein the fingerprint identification processing device, element 24, corresponds to the image recognition sensor and optical beam L sent from the light source (16) to imaging element (18) corresponds to the reflecting light reflected from the image pattern and the amount of light being differently reflected according to the fingerprint pattern which corresponds to a position from which the reflecting light is reflected).

As to claim 5, Morita discloses the apparatus of claim 2, wherein the second recognition section comprises:

A first biological-signal recognition section disposed on a first end portion of the transparent substrate, which is adjacent to the first recognition section (Fig. 2 elements 15, 15a, 21a and 21b, wherein the first electrode (21a) corresponds to the first biological-signal recognition section which, as seen in Fig. 2, is disposed on a first end portion of the transparent substrate (15), which is adjacent to the first recognition section (15a)); and

A second biological-signal recognition section disposed on a second end portion of the transparent substrate, which is adjacent to the first recognition section and opposite to the first end portion (Fig. 2 elements 15, 15a, 21a and 21b, wherein the second electrode (21b) corresponds to the second biological-signal recognition section which, as seen in Fig. 2, is disposed on a second end portion of the transparent substrate (15), which is adjacent to the first recognition section (15a) and opposite to the first end portion).

As to claim 6, Morita discloses the apparatus of claim 5, wherein the first and second biological recognition sections comprise a capacitance type biological-signal recognition sensor that acts as a capacitor with the object having the image pattern (column 5, lines 3-13).

As to claim 7, Morita discloses the apparatus of claim 6, wherein the first and second biological-signal recognition sections act as a lower electrode of the capacitor and the object having the image pattern acts as an upper electrode of the capacitor (column 5, lines 3-48).

As to claim 9, Morita discloses the apparatus of claim 1, wherein the image pattern of the object comprises a fingerprint image obtained from the human being (column 3, lines 19-29).

As to claim 10, Morita discloses the apparatus of claim 1, wherein the object directly makes contact with the transparent substrate (Fig. 2, elements 3 and 15, as seen in Fig. 2, the object (3) is in direct contact with the transparent substrate (15)).

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita in view of USPN 5,991,467 to Kamiko.

As to claim 4, Morita discloses the apparatus of claim 3.

Morita does not disclose expressly wherein the image recognition sensor comprises:

A sensing TFT that outputs a voltage signal corresponding to the reflecting light reflected from the image pattern;

A storage capacitor that charges an electron charge corresponding to the voltage signal input from the sensing TFT; and

A switching TFT that outputs a voltage signal corresponding to the electron charge charged into the storage capacitor in response to a switching signal applied from an external.

However, Kamiko discloses an image recognition apparatus comprising:

A transparent substrate (column 4, lines 38-41); and

A first recognition section disposed on the transparent substrate, the first recognition section receiving an image pattern from an object and generating a first recognition signal corresponding to the received image pattern (column 4, lines 16-29 and Fig. 1, elements 59 and

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31, as seen in Fig. 1, the entire surface of transparent substrate (59), comprising of protective film (31), correspond to a first recognition section disposed on the transparent substrate, for use in receiving a fingerprint pattern to generate a fingerprint image for fingerprint recognition)

wherein the first recognition section comprises an image recognition sensor that generates the first recognition signal corresponding to an amount of a reflecting light reflected from the image pattern, the amount of the reflecting light being differently reflected according to a position from which the reflecting light is reflected (column 4, lines 30-36, wherein the image sensor corresponds to an image recognition sensor),

wherein the image recognition sensor comprises:

A sensing TFT that outputs a voltage signal corresponding to the reflecting light reflected from the image pattern (column 4, lines 40-63 and column 7, lines 36-40);

A storage capacitor that charges an electron charge corresponding to the voltage signal input from the sensing TFT (column 7, lines 41-45 and column 8, lines 27-36); and

A switching TFT that outputs a voltage signal corresponding to the electron charge charged into the storage capacitor in response to a switching signal applied from an external (column 7, lines 41-45 and column 8, lines 59-62).

Morita & Kamiko are combinable because they are from the same art of image processing, specifically fingerprint image recognition.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the image sensor comprising the use of a sensing TFT, storage capacitor and switching TFT, as taught by Kamiko, with the image recognition apparatus disclosed Morita.



The suggestion/motivation for doing so would have been to provide an inexpensive, miniaturized and thin image reading apparatus (Kamiko, column 2, lines 16-19).

Therefore, it would have been obvious to combine Morita with Kamiko to obtain the invention as specified in claim 4.

*Allowable Subject Matter*

6. Claims 11-22 are allowed.

7. Claims 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is an examiner's statement of reasons for allowance:

As to claim 11, none of the prior art teach or fairly suggests the limitation of "a gate-off line extended in the second direction, arranged in the first direction and adjacent to the gate lines, the gate-off line outputting a gate-off signal to the first recognition section", in combination with the other limitations of the claim. The prior art of Morita, already of record, discloses an image recognition apparatus comprising a first and second recognition section and the prior art of Kamiko, already of record, discloses an image recognition apparatus comprising a plurality of sensing signal output lines, a plurality of gate lines, a plurality of pixel areas, a first recognition section and a bias line. However, neither Morita nor Kamiko disclose a gate-off line extended in the second direction, arranged in the first direction and adjacent to the gate lines, the gate-off line

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outputting a gate-off signal to the first recognition section, as disclosed in the limitations of claim 11.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 6,002,786 to Hallibert et al. discloses a fingerprint sensor with a second live human sensor.

USPN 6,181,808 to Fukuzumi discloses a fingerprint sensor with a second live human sensor.

USPN 6,871,242 to Ho-Lung et al. discloses a fingerprint sensor with a second live human sensor.

USPN 6,144,757 to Fukuzumi discloses a fingerprint sensor with a second live human sensor.

US 2003/0072475 to Tamori discloses a fingerprint sensor with a second live human sensor.

US 2002/0018585 to Kim discloses a fingerprint sensor with a second live human sensor.

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US 2002/0076089 to Muramatsu et al. discloses a fingerprint sensor with a second live human sensor.

US 2003/0147550 to Shigeta discloses a fingerprint sensor with a second live human sensor.

US 2004/0071322 to Choshi et al. discloses a fingerprint sensor with a second live human sensor.

US 2006/0034492 to Siegal et al. discloses a fingerprint sensor with a second live human sensor.

US 2006/0204062 to Shigeta discloses a fingerprint sensor with a second live human sensor.

USPN 4,358,677 to Ruell et al. discloses a fingerprint sensor with a second live human sensor.

USPN 5,088,817 to Igaki et al. discloses a fingerprint sensor with a second live human sensor.

USPN 5,103,486 to Grippi discloses a fingerprint sensor with a second live human sensor.

USPN 5,594,806 to Colbert discloses a fingerprint sensor with a second live human sensor.

USPN 5,635,723 to Fujieda et al. discloses a fingerprint sensor with a second live human sensor.

USPN 5,719,950 to Osten et al. discloses a fingerprint sensor with a second live human sensor.

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USPN 6,314,195 to Fukuzumi discloses a fingerprint sensor with a second live human sensor.

USPN 6,392,636 to Ferrari et al. discloses a fingerprint sensor with a second live human sensor.

USPN 6,668,071 to Minkin et al. discloses a fingerprint sensor with a second live human sensor.

USPN 6,888,956 to Muramatsu et al. discloses a fingerprint sensor with a second live human sensor.

USPN 6,960,788 to Joo et al. discloses a fingerprint sensor with a second live human sensor.

USPN 7,123,755 to Shigeta discloses a fingerprint sensor with a second live human sensor.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W. Carter whose telephone number is (571) 272-7445. The examiner can normally be reached on 8am - 4:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Aaron Carter  
AU 2624